

INITIAL STATEMENT OF REASONS

FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF THE STATE FIRE MARSHAL

REGARDING THE 2016 CALIFORNIA FIRE CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 9

2016 INTERIM RULEMAKING CYCLE

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

Health and Safety Code Section 18928:

The specific purpose of this rulemaking effort by the Office of the State Fire Marshal (SFM) is to act in accordance with Health and Safety Code section 18928, which requires all proposed regulations to specifically comply with this section in regards to the adoption by reference with amendments to a model code within one year after its publication.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies addressed in the 2015 International Fire Code and published as the 2016 California Fire Code.

The general purpose of this proposed action is principally intended to update the 2016 California Fire Code (California Code of Regulations, Title 24, Part 9) based upon updated information or recent actions of the SFM. This proposed action:

- Repeal certain amendments to the 2015 International Fire Code and/or California Fire Standards not addressed by the model code that are no longer necessary nor justified pursuant with Health and Safety Code 18930(a)(7).
- Adopt and implement additional necessary amendments to the 2016 California Fire Code that address inadequacies of the 2015 International Fire Code as they pertain to California laws.
- Codify non-substantive editorial and formatting amendments to the 2016 California Fire Code.

[Item 1. On-Demand Mobile Fueling Operations.]

SECTION 5707
ON-DEMAND MOBILE FUELING OPERATIONS

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5707.3.1

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105.6.17

Rationale: The OSFM is proposing the above modifications based on the proposal (F386-16) approved for the 2018 International Fire Code that incorporates On-Demand Mobile Fueling Operations. This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing these proposals forward based on the recommendation from Office of the State Fire Marshal's Mobile Fueling Task Force – IFC Subgroup.

The following is the rationale for support of the proposed modifications:

Original proponent's reason: This Public Comment is designed to regulate on-demand mobile fueling operations, vehicles and equipment by authorizing the fire code official to permit operations and individual sites. This Public Comment provides a code compliant path for on-demand mobile fueling and provides the fire code official the explicit authority to regulate such operations while leaving current mobile fleet fueling requirements unchanged.

On-demand mobile fueling is an emerging industry that has had significant consumer demand both nationally and internationally. The practice is already occurring—both regulated and unregulated—and codification in the national code is imperative to ensure safe, consistent regulation of the operation.

This Public Comment was developed by the California State Fire Marshal's Office Mobile Fueling Task Force – IFC Subgroup, comprised of fire code officials, industry stakeholders, and interested parties.

[Item 2. Correlation of Building Code Regulations for Automatic Fire Sprinklers in Elevator Machine Area Clarification]

Amendments to NFPA 13 in Chapter 80

The OSFM is proposing the above regulation to correlate with California Building Code amendments to NFPA 13. The changes provide clarification on the intent of smoke detection in the elevator machine room. The proposals are recommended by the 2016 High-rise committee.

[Item 3. Correlation of Building Code Regulations for Multipurpose Residential Fire Sprinkler Systems Clarification and Modifications]

Amendments to NFPA 13D in Chapter 80

The OSFM is proposing the above regulation to correlate with California Residential Code amendments to NFPA 13D. The changes provide clarification on where the 5 gpm safety factor is added for residential fire sprinkler systems. The proposal is recommended by the 2016 Residential Fire Sprinklers Working Group.

[Item 4. Correlation of Building Code Regulations for Stand-Alone Pump and Tanks in Residential Fire Sprinklers Clarification and Modifications]

Amendments to NFPA 13D in Chapter 80

The OSFM is proposing the above regulation to correlate with California Residential Code amendments to NFPA 13D. The changes provide guidance on the use of a stand-alone pump and tank system for residential fire sprinkler systems. The proposal is recommended by the 2016 Residential Fire Sprinklers Working Group.

Changes after the CAC

The OSFM made the changes to address the concerns of the Committee. The change was making the test connection return to the tank is permissible. It was confirmed the 240v was not an error.

[Item 5. Educational Editorial Changes to Remove Duplication and Provide Clarity.]

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The OSFM is proposing the above regulations recommended from the E Occupancy Task Force (2016). This proposal is editorial in nature. It is to provide clarity by eliminating duplication of

regulations, move text and modify language with no regulatory changes.

Reduce or eliminate the duplicate regulations

The Task Force examined the duplication of the regulations. The California Fire Code regulations had been promulgated at a different time and from different sources. The Leroy F. Greene School Facilities Act, the Education Code, the current model codes from the International Code Council and the previous model codes based on the Uniform Building and Fire Codes were identified as sources for the regulations. This created different regulations for different situations based on public, private or funding sources. However, a large number of the regulations had become the same due to changes in the model code. In many cases, the regulations were exactly the same.

The Task Force recommends combining or grouping duplicative regulations where possible. This will reduce confusion and clearly show the differences in regulations based on public schools, funding source or private school. The regulations that are common to all of them will be located in one spot. These changes will provide clarity with no regulatory change.

Fire Alarm Monitoring Requirements in CFC 907.6.6.2

The fire alarm systems are required to be monitored to meet the Division of the State Architect's mission of protecting life and property. There was confusion about whether or not a monitoring system was required for a manual fire alarm system. The Task Force did not identify any reason to have a manual system monitored. The Task Force is recommending the addition of the word "automatic" to the description of the fire alarm system in CFC 907.6.6.2. The Task Force is also recommending some clarifying language on the description of monitoring and a pointer for the process when monitoring is terminated. These changes will provide clarity with no regulatory change.

Manual & Automatic Fire Alarm Requirements in CFC 907.2.3

The California Fire Code requires a manual and an automatic fire alarm system in E occupancies. The CFC 907.2.3.6.1 requires smoke detection in every room. So a code compliant system automatically meets the exceptions in CFC 907.2.3 and the manual fire alarm boxes are not required. The Task Force examined this and determined there was no need to require a manual fire alarm system when an automatic fire alarm system is installed. The committee is recommending the removal of the word "manual" and to remove the exceptions for manual pull boxes in this section. This change will provide clarity with no regulatory change.

[Item 6. Energy Power Storage Systems]

105.7.2

SECTION 202

~~608.1 through 608.6.6~~

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608.1

Table 608.1

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Table 608.3

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Rationale: The OSFM is proposing the above modifications based on the proposal (F95-16) approved for the 2018 International Fire Code that incorporates Energy Power Storage Systems. This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing these proposals forward based on the current need for guidance and clarification on the safe installation of energy storage system that an emerging industry in California.

Reason: When Section 608 was developed it primarily addressed hazards associated with stationary lead acid battery systems used for standby and emergency power. Advancements in battery technologies have introduced a new generation of battery technologies, such as lithium-ion and flow batteries, each with advantages and potential hazards. Unfortunately the IFC/IBC have no specific requirements that regulate the use of these new battery technologies in occupancies and buildings, including high-rise and underground buildings. At the same time societal needs for energy solutions such as load shedding and load sharing, while well intentioned, have created a situation where thousands of pounds of storage batteries, and millions was watt-hours of stored energy systems can be installed with little if any building or fire official oversight.

Providing protection for these new technologies and the huge amounts of energy they store is something that needs to be addressed through research, fire and fault condition testing, and the development of effective safety standards. Unfortunately much of this working, such as determining the ability of fire suppression systems to control thermal runaway of a large storage battery installation, still needs to be completed.

This proposal provides a complete rewrite of Section 608 and is an integral part of an energy storage system (ESS) set of IFC proposals. This proposal was developed with input from a Fire Code Action Committee Energy Storage System working group, which consisted of industry, representatives of government agencies, and the fire service. Comments on selected portions of the proposal:

105.7.2, 608.1.2, 608.1.3 A construction permit was added, along with details on the documentation needed to evaluate the construction.

Section 202 Definitions of two terms used in this Section were added for clarification.

608.1.1, Table 608.1 The scope of this section was revised to (1) add new battery technologies, (2) use Kilowatt-hour units which better describe the risk level (and use) compared to gallons of electrolyte or pounds of batteries, (3) establish threshold levels that are commensurate with the potential risks. The 70 KWh should approximate the existing 50 gallon electrolyte trigger for lead-acid batteries.

608.1.4 – 608.1.4.3 A hazardous mitigation analysis is required under certain identified circumstances to address uncertainties associated with new technologies and configurations. This section describes the fault considerations to be evaluated and the acceptance criteria to be achieved, information needed by both the design professional and the fire code official.

608.2.1 These location restrictions address concerns fire departments have with responding to incidents involving stationary storage battery systems, which include upper stories in high rise buildings and in stories identified as underground buildings.

608.2.2 Retains the hourly incidental use fire-resistance separation requirements in IBC Table 509.1.

608.2.3 To address unknowns on whether thermal runaways can proliferate unabated through a very

large number of adjacent batteries in a storage room, a maximum 50 KWh limitation was proposed for individual arrays, or groups of adjacent batteries, which are required to be separated by three feet from other battery arrays or walls. To put this in perspective this 50 KWh is equivalent to 104 storage batteries, each rated 12V, 40 A-H. Exceptions for larger size arrays are provided for lead-acid batteries based on their track record over the years, and for listed pre-engineered and prepackaged storage battery systems.

608.2.4 , 608.2.5 Sections based on current IFC requirements.

608.2.6 New signage requirements, which provide important information for facility personnel and emergency responders.

608.2.7 New requirements for outdoor installations that recognize installations are being provided in ISO and similar metal and noncombustible containers. An exception for not requiring 3 foot spacing from stationary battery arrays to the noncombustible walls recognizes that the container is not directly adjacent to an occupied portion of the building.

608.3 Scientific research and large scale fire and fault condition testing is not available to justify allowing unlimited quantities of storage batteries to be provided in mixed occupancy buildings using the incidental use provisions of the code. This section establishes a maximum 600 KWh MAQ for each fire area, which is equivalent to 1250 storage batteries, each rated 12V, 40 A-H. Quantities above this amount are only allowed in Group H occupancies.

An exception is provided for allowing larger quantities, when approved, based on large scale testing.

608.4 This section includes requirements that the storage batteries and related equipment must meet. This includes listing of the batteries and battery systems, which will address construction and safety performance requirements. Energy management systems are an important element of a safe system that monitor and takes actions on off normal conditions that could lead to problems.

608.4.8 This section covers battery technologies (many yet to hit the market) that produce toxic gases during charging, discharging and normal use, and triggers Chapter 60 safety requirements. There is no intent to address batteries that produce toxic gases during fires or abnormal conditions.

608.5.1 A significant challenge facing designers and code officials is a lack of large scale fire and fault condition test data that demonstrates that fire suppression systems can control battery fires. Until such protection arrangements are documented in NFPA 13 and other standards, this section allows the code official to approve suppression systems based on test data made available to him.

608.5.2 Existing requirement.

608.5.3 Mechanical ventilation requirements are consistent with existing IFC battery room and battery cabinet requirements. However in lieu of continuous ventilation they are allowed, ventilation is permitted to be provided upon activation of the gas detection system.

608.5.4 Gas detection systems must be provided if so required by the approved hazard mitigation analysis (Section 608.1.4.3) or by Section 608.6. They may also be provided to activate mechanical ventilation systems.

608.5.5 Spill control and neutralization requirements are based on existing stationary battery system requirements, and also applicable requirements for spill control for hazardous material liquids, included in Section 5004.2.1. This recognizes that in new battery technologies that spills of hazardous materials other than lead acid electrolyte might occur and need to be mitigated.

608.6 This section includes requirements for specific battery technologies, and includes criteria that address potential hazards associated with the type of technology involved. The protection requirements are customized for the potential hazards associated with the various battery technologies.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC (<http://www.iccsafe.org/codes-tech-support/cs/fire-code-action-committee-fcac/>)

Committee Reason: The proposal was approved as it addresses the needs of new battery and energy systems with regard to safety. The modifications were primarily related to addressing two overall issues. These issues relate to recognizing the excellent safety record for the telecommunications industry and allowing them to continue to do business as usual. The other issue relates to providing flexibility to the quickly changing area of energy storage system technology where appropriate.

Section 105.6.44 and 608.1.1. The deletion of proposed section 105.6.44 from the proposal was due to the lack of need for such permits. These systems will still require construction permits. This has not been necessary for the application of Section 608 in the past.

Section 608.1.2. A new exception was added for lead acid and nickel cadmium stationary storage battery systems as such a restriction was not seen as necessary based upon the lack of loss history. Limits on height in the building were not seen as necessary for these types of batteries.

Section 608.2.3. The array size limits were not necessary for lead acid and nickel cadmium batteries due to their good safety record and lack of experience with thermal runaway. A new exception 2 was added that recognizes the performance of listed lithium ion battery arrays not exceeding 250 KWhs based upon the performance of such arrays demonstrated by the listing. Also, a new exception 4 is added that allows for preengineered and prepackaged systems to be in larger arrays where large scale fire and fault condition testing demonstrate that fire will not spread to an adjacent array. This provides flexibility for the changing and evolving technologies and recognizes systems that are rigorously tested.

Section 608.2.6 and 608.2.6.2. Based upon concerns for many existing installations of lead acid and nickel cadmium batteries much of the existing signage language was placed back into the section.

Section 608.2.7.1 and 608.2.7.2. These modifications recognize the concept of demonstrating performance of energy systems through full scale fire and fault condition tests. In this case it allows closer proximity to locations such as lot lines and means of egress. This provides flexibility for an industry that is evolving quickly.

Table 608.3. Consistent with other modifications this simply returns Table 608.3 to the 2015 allowance permitted for lead acid and nickel cadmium batteries due to the good safety records for such batteries. Limiting to 600 KWh and classifying as Group H-4 was not justified.

Section 608.4.3 This also relates to the good safety record for lead acid and nickel cadmium batteries. It was not felt to be necessary to provide an energy management system. These energy management systems are more critical to new technologies.

Section 608.5.1 This section would have required automatic sprinkler systems in accordance with NFPA 13. This is something that had not been previously required for lead acid and nickel cadmium batteries and was not seen as necessary now based upon the good safety record of such batteries. This also relates to the current exception in Section 903 for telecommunication facilities.

Sections 608.5.3, 608.5.3.1, 608.6.1, 608.6.2, 608.6.4, 608.6.5. The modifications to these sections was simply to recognize ventilation whether mechanical or nature. The current requirements in the 2015 IFC would not have mandated mechanical. The provisions have been revised to allow this but with the appropriate criteria. Clarification of the applicability of items 1

through 3 in Section 608.5.3 may be necessary. The intention is one of the following but the format of the section does not necessarily reflect this.

Section 608.5.4. The use of 1/2 IDLH is more consistent with a rewrite to gas detection systems. Also the criteria of PEL is considered too low and is unreasonable.

Section 608.5.4.1. This modification simply recognizes that previously with lead acid and nickel cadmium batteries that activation of the gas detection system simply activates the mechanical ventilation system and does not require compliance with the other actions such as transmission of an alarm. Again the justification for such a change in requirements was not provided.

Section 608.5.5. This modification makes the provisions related to neutralizing lead acid and nickel cadmium to what was previously allowed based upon the good safety record of such batteries. The proposal had made the requirements more restrictive without justification.

Item 7. Underground petroleum tanks within the definition of the Aboveground Petroleum Storage Act for the changes made by SB 612]

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The SFM is proposing the modifications pursuant to Senate Bill (SB) 612 (Jackson, Chapter 452, Statutes of 2015.). The California Aboveground Petroleum Storage Act (APSA), as described in Health and Safety Code, Division 20, Chapter 6.67, requires the SFM to develop regulations for petroleum (flammable and combustible liquid) tanks in underground areas, ancillary equipment, and associated piping pursuant to Health and Safety Code Sections 25270.2(o)(1)(C)(iv)(III), 25270.2(o)(3)(A) and 25270.4.1(a). SB 612 specifically requires all piping connected to a tank in an underground, including any portion of a vent line, vapor recovery line, or fill pipe that is beneath the surface of the ground, and all ancillary equipment, to either be visually inspected by direct viewing or have both secondary containment and leak detection that meet the requirements of the regulations adopted by the SFM.

The Federal Spill Prevention, Control, and Countermeasure (SPCC) requirements (Code of Federal Regulations, Title 40, Part 112), the State Aboveground Petroleum Storage Act, and the State underground storage tank (UST) law and regulations (Health and Safety Code, Division 20, Chapter 6.7 and California Code of Regulations, Title 23, Chapter 16) are duplicative and inconsistent in regulating storage tanks in underground areas. Under the Federal requirements, aboveground storage tanks (AST) in underground areas, such as vaults, basements or cellars, are regulated as ASTs. However, in California these ASTs in underground areas are predominantly regulated as USTs, with some exceptions allowed provided they meet certain criteria.

The State APSA was originally passed into law in 1989 as a combination of the direct consequence of the Martinez oil spill in 1988, the inadequate frequency of AST facility inspections for compliance with the Federal SPCC rule due to limited resources by the Federal government, and the State's lack of an AST inspection program. APSA incorporated the existing SPCC rule requirements and required AST facilities with petroleum to prepare and implement a Federal SPCC plan. The APSA Program was originally implemented by the State Water Resources Control Board and the Regional Water Quality Control Boards. Unfortunately, the budget crisis during fiscal year 2002-2003 eliminated the resources for the APSA program, which halted all inspection activities. APSA was amended a few times; however, there were two notable amendments, Assembly Bill (AB) 1130 (Laird, Chapter 626, Statutes of 2007) and

AB 1566 (Wieckowski, Chapter 532, Statutes of 2012). AB 1130 transferred the authority to implement the program from the State to the local Unified Program Agencies (UPA), and AB 1566 delegated the SFM the oversight responsibility of the APSA program. AB 1566 also redefined the term “tanks in underground areas,” which allowed some petroleum tanks in underground areas to be regulated under APSA; however, most tanks in underground areas continued to be subject to both State UST requirements, as well as State and Federal AST requirements.

New ASTs must be installed and constructed following the AST requirements in accordance with the California Code of Regulations, Title 24, and the applicable referenced national standards; however, the State Water Resources Control Board, who oversees the implementation of the State UST requirements, regulates the majority of ASTs in underground areas as USTs. As a result, tank owners and operators are required to meet State and Federal AST requirements and certain State UST requirements. These inconsistent laws and regulations place inconsistent and duplicative requirements on both tank facilities and the local Unified Program Agencies implementing the State’s UST and petroleum AST requirements.

Therefore, SB 612 was passed to further clarify and distinguish the requirements for petroleum tanks in underground areas between the State APSA and UST law, and it also required regulations to be developed to address piping connected to tanks in underground areas that cannot be viewed for inspection. Compliance with one set of rules is easier for regulated businesses to achieve and easier for local enforcing agencies to implement and enforce.

State UST laws and regulations require the installation of secondary containment and monitoring systems. Currently, piping systems connected to underground storage tanks, including tanks in underground areas, are required to have secondary containment and monitoring pursuant to the California Code of Regulations, Title 23, Section 2636(a) and (f).

1. Each UST, including a tank in an underground area, and connected piping systems that were installed after January 1, 1984, and before July 1, 2003, were required to have secondary containment and monitoring pursuant to Health and Safety Code, Division 20, Chapter 6.7, Section 25291(a) and (b).
2. Each UST, including a tank in an underground area, and connected piping systems that were installed on or after July 1, 2003, and before July 1, 2004, were required to have secondary containment and monitoring pursuant to Health and Safety Code, Division 20, Chapter 6.7, Section 25290.2(c), (d), and (j).
3. Each UST, including a tank in an underground area, and connected piping systems that were installed on or after July 1, 2004, were required to have secondary containment and monitoring pursuant to Health and Safety Code, Division 20, Chapter 6.7, Section 25290.2(c), (d), (e), and (k).

The State and Federal AST requirements and the current fire code do not provide the same level of protection against leaks or spills from the piping connected to petroleum tanks in underground areas. This proposal will address the piping, valves, fittings, and ancillary equipment, unable to be viewed, connected to ASTs in underground areas to ensure that petroleum does not leak or spill and contaminate the environment, including groundwater, in a manner consistent with existing UST regulations.

SECTION 202

DEFINITIONS

TANK IN AN UNDERGROUND AREA.

Reason: This proposal provides the definition of a “tank in an underground area” for consistency with the definition as described in the APSA, Health and Safety Code, Division 20, Chapter 6.67, Section 25270.2(o)(1). This definition is derived from the APSA, Health and Safety Code, Division 20, Chapter 6.67, Section 25270.2(o)(1)(A).

The exception is added to clarify that tanks that are not regulated under APSA are not regulated under this proposal. The tanks listed in the exception are the tanks or tank facilities that are excluded from regulation under APSA, as described in Health and Safety Code Section 25270.2(a)(1) through (7).

SECTION 2306.6.7

Reason: This proposal is to ensure that piping connected to tanks in underground areas at motor fuel-dispensing facilities and repair garages also comply with the requirements as proposed Section 5703.6.2.2.

SECTION 5703.4.1

Reason: This proposal is added for the following reasons: (1) pursuant to SB 612; (2) to be consistent with existing Federal SPCC requirements (Code of Federal Regulations, Title 40, Part 112, Sections 112.7(c) and 112.8(c)(2) for secondary containment); and (3) to match existing State UST requirements for secondary containment on tanks in underground areas and associated piping. Specifically, this proposal requires secondary containment on tanks in underground areas and associated piping systems. Proposed Section 5703.6.2.2. is referenced, because additional requirements for piping connected to tanks in underground areas are specified in proposed Section 5703.6.2.2.

SECTION 5703.6.2.2

Reason: This proposal is added pursuant to SB 612 and to match existing State UST requirements, including tanks in underground areas and associate piping. Specifically, this proposal requires piping systems connected to tanks in underground areas to be either visually inspected or be installed with secondary containment and leak detection.

SB 612 made legislative changes to provide that a petroleum tank in an underground area subject to aboveground tank regulation is not subject to regulation pursuant to laws specific to underground storage tanks. Pursuant to the Code of Federal Regulations, Title 40, Part 112, owners and operators of regulated aboveground tank facilities must prepare and implement an SPCC Plan in accordance with good engineering practices and industry standards. The SPCC Plan details the equipment, workforce, procedures, and steps to prevent, control, and provide adequate countermeasures to a discharge. For example, it includes the following: (1) discharge or drainage controls such as secondary containment around aboveground storage tanks, containers, other structures and equipment, and oil handling and transfer areas; (2) procedures for the control of a discharge of oil; (3) regular inspection of all aboveground valves, piping, and appurtenances; (4) integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement; and (5) buried piping to be cathodically protected or otherwise satisfy corrosion protection standards for piping and, in some cases, periodic integrity testing for piping. Although the Federal SPCC regulations suggest leak detection and containment for piping connected to aboveground tanks in underground areas, they lack specific requirements for leak containment and leak detection for buried piping. As a result, this proposal is necessary to eliminate gaps in State and Federal regulatory programs for buried piping connected to petroleum tanks in underground areas in order to maintain the same environmental protection in California as these tanks are transitioned from the UST program into regulation under APSA. This proposal completes the final step in reforming California's regulatory scheme for petroleum tanks in underground areas by requiring compliance only with the most appropriate law and eliminating independently established dual standards.

This proposal requires that buried piping connected to petroleum tanks in underground areas have secondary containment and leak detection. The universe of equipment configurations for AST systems is greater than the specialized UST leak detection equipment and many leak detection devices used on ASTs are certified by Underwriters Laboratories. AST piping systems are not allowed to have any quantifiable "allowable" leak rate, such as <0.1 gallons per hour (gph); leaks are not allowed in AST systems.

Due to low risk and leak prevention standards already in place for critical emergency systems, piping systems connected to emergency systems, legally required standby systems, optional standby systems, or fire pumps as specified in Health and Safety Code Section 25270.2(o)(1)(C)(iii) and systems containing petroleum to be used or previously used as lubricant or coolant in motor engines, transmissions, or oil-filled operational or manufacturing equipment, as described in Health and Safety Code Section 25270.2(o)(1)(C)(i), these specific systems are exempt from this proposal. In addition, hazardous waste tank systems are already required to meet specific secondary containment and leak detection requirements pursuant to State hazardous waste control laws and regulations; therefore, such hazardous waste tank systems are also exempt from this proposal.

Monitoring method 1 is required for piping that cannot be visually inspected, including through the use of technology. This method would be required for buried piping and is consistent with one of the monitoring systems for underground piping allowed under the State UST requirements pursuant the California Code of Regulations, Title 23, Division 3, Chapter 16, Section 2636(f)(1).

Monitoring method 2 is for piping that can be visually inspected by designated personnel at the facility. The Federal SPCC rule requires periodic inspections of containers and tanks, and the inspections and leak testing of piping, in accordance with industry standards. The majority of tanks in underground areas are shop-fabricated aboveground storage tanks. The monthly inspection frequency was included for consistency with the Federal SPCC rule and the industry standard for inspections of shop-fabricated aboveground storage tanks, which is the Steel Tank Institute (STI) SP001 "Standard for the Inspection of Aboveground Storage Tanks."

Monitoring method 3 is for piping that can be visually inspected through the use of technology, such as mirrors, cameras or video equipment. This method may be utilized for piping encased behind or between walls. The use of technology to visually inspect a tank in and underground and associated piping is allowed pursuant to SB 612.

Monitoring method 4 is provided in the event that none of the first three methods are practicable. In circumstances where none of the abovementioned three methods are practicable, an equivalent (or more stringent) method may be considered if approved by the fire code official and provided with the alternate means of protection. This method is comparable to the alternative measures and environmental equivalence allowed under the Federal SPCC rule for certain requirements that cannot be met by the facility owner or operator.

SECTION 5704.2.7.4

Reason: This section is amended to incorporate requirements proposed in Section 5703.6.2.2 for emergency vent pipes.

Item 8. Photovoltaic systems modifications

605.11.1,
605.11.1.2.1
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605.11.2

The OSFM is proposing the above modifications based on the proposal (F85-16) approved for the 2018 International Fire Code Section 605.11 (605.11 is also in Section 3111 of the California Building Code and Section R331 of the California Residential). These modifications are primarily editorial and provide additional clarification. This code proposal has been heard and accepted by the ICC Fire Code Committee at the ICC Code Hearings held April-May, 2016 in Louisville, KY. Final Action of these modifications was approved in October 2016, in Kansas City, MO. The SFM is bringing these proposals forward in part to further implement the State's Renewable Portfolio Standard (RPS) and provide necessary tools for enforcement officials, building owners, manufacturers and the construction industry.

The following is the Rationale for support of the proposed modifications:

This proposal is intended to remove redundant text and provide additional clarity for the design and enforcement of the access and setback provisions relating to roof top photovoltaic arrays. This proposal does not remove the intended provisions for firefighter safety for roof ventilation operations. Additionally, this proposal allows the increase of the solar array area and reducing the width of the roof access paths for Group R-3 occupancies provided with a residential fire sprinkler system. The data show that approximately 87 percent of all fires in residential housing are controlled by the fire sprinkler activation NFPA's "U.S. Experience with Sprinklers" <http://www.nfpa.org/~media/files/research/nfpa-reports/fire-protection-systems/ossprinklers.pdf?la=en>. The need for fire service to use the roof for firefighting activity is greatly reduced and eliminated in most incidences. Individual sections of 605.11 are revised as follows:

1. Section 605.11.1 includes language formerly found in Section 605.11.1.3.2, Item 1, and includes language that pathways should be free of obstructions. Exception 2 of 605.11.1 is revised from "fire chief" to the defined term "fire code official" to be consistent with other sections of IFC and to recognize other individuals authorized by the fire chief to make such decisions.

2. Section 605.11.1.1 Roof access points is deleted at the request of a representative of the International Association of Fire Fighters (IAFF). This section is deleted because the photovoltaic system designer should not be burdened with decisions regarding placement of ladders by fire fighters, and to eliminate possible conflicts.

The first exception to Section 605.11.1.2 is unchanged. Exception 2 is proposed to eliminate the redundancy where the same language is used three times in existing Section 605.11.

3. Sections 605.11.1.2.1 is deleted, as Group R-3 will not exceed 150 feet, and because it is better addressed in Section 605.11.3.2 (formerly Section 605.11.1.3.2). The 150 foot constraint that was formerly found in old Section 605.11.1.2.2 is moved to new Section 605.11.3.2 Interior pathways.

4. Sections 605.11.1.2.2 through 605.11.1.2.5 are replaced with new Sections 605.11.1.2.1 through 605.11.1.2.2.1. This rewrite is consistent with simplified technical requirements approved by the NFPA 1 technical committee for the First Revision of the NFPA 1 Fire Code. A separate discussion is provided after this list.

5. Section 605.11.3 is revised at the request of co-proponent Kevin Reinertson to clarify that the fire code official has the authority to allow the use of the Group R-3 provisions for buildings similar to Group R-3, but is not forced to do so.

6. Section 605.11.3.1 and 605.11.3.2 are re-titled to clarify they are applicable to perimeter pathways and interior pathways. Requirements for perimeter pathways are unchanged.

7. In Section 605.11.3.2, Item 1 is relocated to the general Section 605.11.1. Item 2 is deleted at the request of a representative of IAFF. The former requirement for centerline pathways is replaced with new Item 1 that clarifies access pathways shall be no greater than 150 feet apart. This section is simplified by rewriting Items 3 and 4 as new items 2 and 3, and editing for consistency with other sections. The technical provisions are not changed.

8. In Section 605.11.3.3 Smoke ventilation, new Item 1 is relocated at the request of IAFF from the former 4-item option list to its own status as a requirement rather than an option. This will require access bordering all sides to all nongravity-operated smoke and heat vents found on a building, without exception. It is not apparent in the cdpACCESS version that former Item 1 was replaced, and should have remained visible in strike-out. Former Item 1 was the source of the language "Arrays shall be not greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in distance in either axis in order to create opportunities for fire department smoke ventilation operations." This language is now moved to 605.11.3.2 Interior pathways.

9. The remainder of Section 605.11.3.3 Smoke ventilation is now Item 2, to clarify that there are requirements with three options, in addition to mandatory Item 1. This is renumbered as Items 2.1 through 2.3. These items have editorial changes but no changes to technical requirements.

10. Section 605.11.4 Ground mounted systems is revised by title and text to the defined term photovoltaic panel systems. There are not changes to technical requirements.

The following notes are modified from the corresponding residential proposal for the International Residential Code (IRC).

The residential rooftop access and setback provisions in these proposals are improved over those found in the 2015 International Fire Code. The language has been simplified, and redundant language has been removed. In a collaborative effort with representatives from the International Association of Fire Fighters (IAFF), the requirements have been simplified. Requirements that were deemed unnecessary are removed, and access provisions are intended to be more effective for the fire service. The concepts for ridge setbacks varying with coverage of the PV system originated with the City of Boulder fire service.

The residential portion of the IFC proposal is for Group R-3 Occupancies. There is a parallel proposal for the IRC. This proposal uses the residential portions of the IFC proposal to serve one- and two -family dwellings and townhouses constructed in conformance with the IRC. There is also a parallel effort in the NFPA 1 Fire Code development process. Proposals with very similar technical provisions were approved by the NFPA 1 technical committee into the First Revision of 2018 NFPA 1 Fire Code. These efforts to update the IFC will play a role in the public comment process for NFPA 1. At the time of this submittal, NFPA 1 is not yet in the public comment period.

[Item 9. Plant Processing and Extraction]

105.6.50

105.7.19

SECTION 2 DEFINITIONS

DESOLVENTIZING

MISCELLA

3801.1

3801.2

3801.3

3802.1

3803.1

3803.2

3803.3

3803.4

3803.5

3803.6

3803.7

3804.1

3804.2

3804.3

3804.3.1

3804.4

3805.1

3805.1.1

3805.1.2

3805.1.3

3805.1.4

3805.1.5

3805.2

Rationale: The OSFM is proposing the above regulations for a new chapter in the Fire Code. The regulations are based on the proposal (F338-16) approved for the 2018 International Fire Code that incorporates the Plant Processing and Extraction Facilities. This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing these proposals forward based on the current need for regulations that are driven by the medical marijuana industry.

The following is the rationale for support of the proposed modifications:

Reason: This proposal is established to provide regulatory guidance to marijuana extraction facilities. This new industry legal in several states produces marijuana for sale in specialty stores. At this time there are no specific regulations in place to ensure safety in the extraction facilities. This proposal will establish specific requirements for handling hazardous materials, establish inspection standards and provide construction and permit requirements to ensure the life/safety of occupants, fire responders and the general public. One of the biggest items this proposal covers and assists with is the fact that there is no listed equipment for these types of processes and this proposal gives the jurisdiction some guidance on how to deal with that issue.

This proposal provides operational and construction permit requirements for marijuana extraction. Marijuana extraction can involve explosive materials and dangerous processes that pose serious risks to public health, safety and welfare, as illustrated by the 2013 explosion, fire and fatality in Bellevue and Spokane, WA. This proposal provides administrative direction, establish definitions, create requirements for risk analysis reports and inspections, identify construction requirements and electrical systems, and direct other administrative oversight to protect public safety. Given the serious risks posed by activities regulated by this rule, observing permanent rule timing requirements would be contrary to the public interest.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC (<http://www.iccsafe.org/codes-tech-support/cs/fire-code-action-committee-fcac/>).

Here is the rationale for the modifications through the public comment that was approved:

Commenter's Reason: This PC addresses a concern that this new chapter should not strictly focus on marijuana but is applicable to other processing and extraction processes with plants such

as lavender and mint. There was no reason it should be limited to one type of plant and the specific references are removed by this public comment. Working with the industry we also made another change and deleted the staffing section from the original proposal, as there is no other location in the code where the fire department requires staffing for a process. The other change was to only require the use of hydrocarbon solvents in a dedicated extraction room or area.

This public comment is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014, 2015 and 2016 the Fire-CAC has held 7 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC (<http://www.iccsafe.org/codes-tech-support/cs/fire-code-action-committee-fcac/>).

Item 10. Carbon dioxide enrichment systems

105.6.4.1

TABLE 105.6.9

SECTION 202 DEFINITIONS

908.8

5308.3

5308.3.1

5308.3.2

5308.3.3

5308.3.4

5308.3.4.1

5308.3.5

5308.3.6

5308.3.7

5308.3.8

The OSFM is proposing the above modifications in the Fire Code. The regulations are based on the proposal (F372-16) approved for the 2018 International Fire Code that incorporates the Carbon dioxide enrichment systems. This proposal works in conjunction with the Plant Processing and Extraction proposal (F338-16). This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing these proposals forward based on the current need for regulations that are driven by the medical marijuana industry.

Reason: The number of indoor marijuana cultivation facilities is expanding rapidly across the country, and an increasing number of them are using carbon dioxide enrichment systems to stimulate plant growth. This is creating a potential asphyxiation hazard that is not currently regulated in codes or standards.

Jurisdictions where these processes are found have to adopt local regulation to mitigate the asphyxiation hazard. The hazard is of particular concern because asphyxiate gas is intentionally being introduced into indoor occupiable rooms and areas. The hazard is the same whether the systems use liquid insulated CO2 system or CO2 gas containers.

The proposal is based in part on Clark County, NV guidelines, and requirements proposed for protecting insulated liquid CO2 systems. In particular:

The 100 lb. threshold is based on insulated liquid CO2 threshold. The definition was created to describe the system covered.

The two level gas detection system detection levels and activation criterion is based on Clark County and the FCAC insulated liquid CO2 system proposal.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC (<http://www.iccsafe.org/codes-tech-support/cs/fire-code-action-committee-fcac/>)

Item 11. A2L refrigerants

606.13 exception

606.16

606.17

606.17.1

606.17.2

606.17.3

Table 606.17.3

606.17.4

Rationale: The OSFM is proposing the above modifications in the Fire Code. The regulations are based on the proposal (F93-16) approved for the 2018 International Fire Code that incorporates the use of Group A2L refrigerants. This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing these proposals forward based California's goal to reduce the ozone depleting gases.

Reason: This proposal provides necessary changes to permit a new class of refrigerants with very low flammability characteristics in refrigerant machinery rooms. This proposal leaves intact the code requirements for refrigerants elsewhere. This change simply allows Group 2L refrigerants in refrigeration machinery rooms to comply with the current code requirements for Group 1, Division 2 Electrical systems, or install detection and ventilation systems to mitigate the hazard. This is similar to the mitigation scheme for many other hazardous operations, including repair garages (2311.4.3), hazardous materials (dozens of examples), compressed gases, corrosives, etc. This is a common and accepted mitigation scheme within the IFC and other codes.

Federal agencies have begun limiting the use of refrigerants that have high global warming potential (GWP) properties. Industry has responded by developing a number of replacement refrigerants. One of the characteristics of most of these products is that they are minimally flammable. Proven protection schemes are available to mitigate the reduced risk posed by these products, and are included in this code change proposal.

The codes (IMC, IFC, ASHRAE) have historically classified the flammability of refrigerants as Group 1 (nonflammable), Group 2 (moderately flammable), and Group 3 (highly flammable).

Because the newly developed environmentally preferred refrigerants present a significantly lower hazard than class 2 refrigerants, a new classification was established for them. The new flammability classification is 2L. In addition to flammability, the codes classify refrigerants as either nontoxic (A) or toxic (B). The new refrigerants are primarily classified as A2L - nontoxic, mildly

flammable. Table 1103.1 in the IMC recognizes 2L refrigerants as a sub-class of group 2.

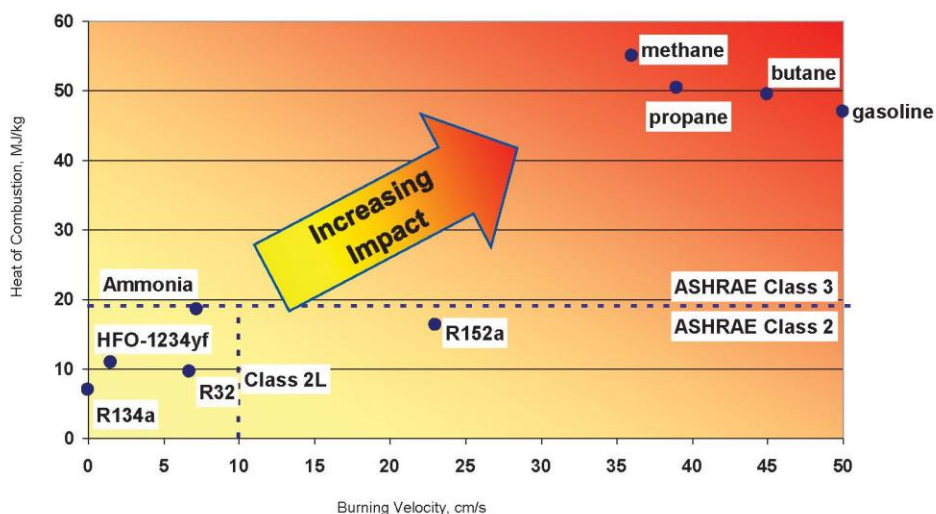
The 2L refrigerants have a burning velocity of less than 10 cm/sec. The energy required for ignition is very high, and the pressure rise is much less than refrigerants with a higher flammability, resulting in a far safer product than current Group 2 refrigerants. Historically, ammonia was the only widely used refrigerant with these burning characteristics. The IFC and other codes recognize this, and have made a number of exceptions for ammonia. These exceptions are based upon the fact that its burning characteristics reduce the risk of ignition, and the risk of damage should ignition occur is greatly reduced. These risks are further reduced by code requirements for detection and ventilation. The fire history for ammonia is excellent where these mitigation measures have been in place - the mitigation measures are working to minimize the fire risks associated with the product.

This proposal provides similar mitigation measures for products with similar burning characteristics. The ventilation rates are based upon research that clearly shows that the rates will maintain a safe environment in over 90% of the leaks. This level of protection is more than adequate. Utilizing the same protection scheme for other 2L refrigerants provides the same level of safety as that for ammonia, and adheres to the philosophy of maintaining a level playing field for industry. Below are some graphs and charts showing the properties of various refrigerants under discussion:

Severity – Related Properties

Flammability is evaluated by 'Chance of Flame occurring' and 'Effect of Flame occurring'

•Effect of Flame occurring -> **Burning Velocity, Heat of Combustion**

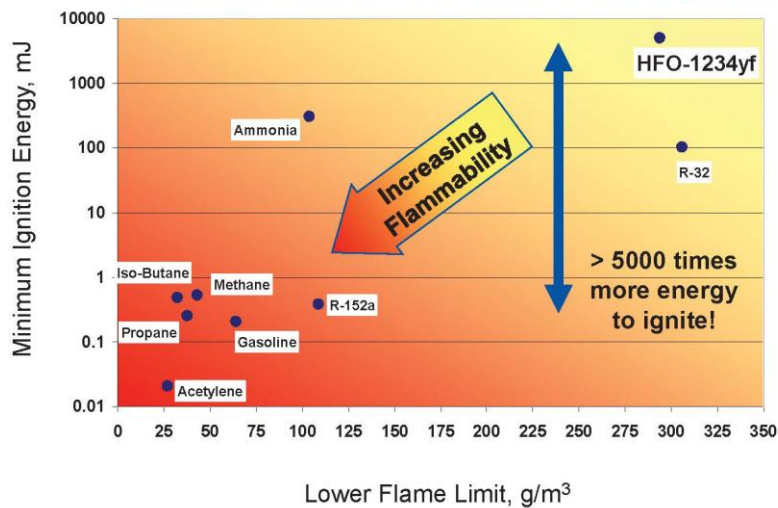


HFO-1234yf is classified in Class 2L (Low Burning Velocity)

Likelihood of Ignition – Related Properties

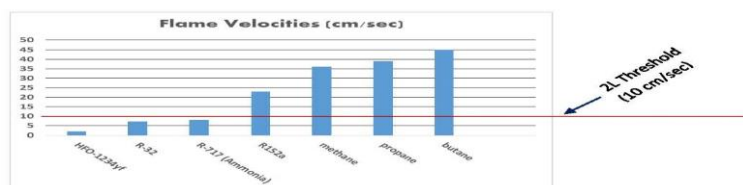
Flammability is evaluated by 'Chance of Flame occurring' and 'Effect of Flame occurring'

- Chance of Flame occurring -> Lower Flame Limit, Minimum Ignition Energy



Difficult to ignite HFO-1234yf due to high Minimum Ignition Energy

12



Specifically, the proposal includes:

606.13: adds a new exception for A2L refrigerants; the body of the paragraph already exempts ammonia from this requirement, thus it's appropriate to exempt other 2L refrigerants, as the fire hazard is the same.

606.16: adds a new exception for A2L refrigerants; an exception already exists for ammonia and the code should treat all 2L's similarly. The ventilation requirements are founded in published research.

606.17 contains the mitigation criteria for hazards associated with A2L refrigerants. This section requires that 2L refrigerants used in machinery rooms to either meet Class 1, Division 2 electrical classification or be provided with early detection and ventilation to dilute the refrigerant.

606.17.2 Specifies the detection criteria for machinery rooms where A2L refrigerants are used; these requirements include supervision of all circuits.

606.17.3 Provides specific criteria for the ventilation requirements. These criteria, including the table, are founded in research conducted by UTC/Carrier. This is widely accepted as the best research on the subject currently available. The ventilation rates in the table are based upon the following formula:

$$Q \geq \frac{m}{LFL \cdot S} \quad (G-1)$$

$$m = c_d \cdot \rho \cdot v \cdot A \quad (G-2)$$

Where variables are defined as:

c_d	-	coefficient of discharge ($c_d \approx 1.00$)
ρ	lb/ft ³ [kg/m ³]	refrigerant density per G.2
v	ft/s [m/s]	refrigerant velocity assuming choked vapor flow conditions, equal to the refrigerant acoustic velocity (speed of sound) per G.2
A	ft ² [m ²]	cross-section flow area of refrigerant leak assuming 0.50 in [12.7 mm] circular opening ($A = 0.001364 \text{ ft}^2 = 0.0001267 \text{ m}^2$)
m	lb/s [kg/s]	refrigerant leak mass flow rate
LFL	lb/ft ³ [g/m ³]	Lower Flammability Limit, or ETFL ₆₀ if no LFL exists, published value per ASHRAE Standard 34 ¹
S	-	Factor to achieve desired safety factor (currently .5, for a safety factor of 2)
Q	ft ³ /s [m ³ /s]	required air flow rate, conversion to other units of measure is permitted

Cost Impact: Will not increase the cost of construction

Currently, Group 2L refrigerants are treated as Group 2 refrigerants; this proposal provides an additional option for mitigating the risks associated with these products, but does not prohibit the designer or owner from following current code requirements. Because this is optional, it will not increase the cost of construction.

Item 12. Gas Detection Systems]

105.7.19

SECTION 202

604.2.2

606.8

606.8.1

901.5

901.6

916.1

916.2

916.2.1

916.3

916.4

916.5

916.6

916.7

916.8

916.9

916.10

916.11

2308.2.2

2309.2.2

2311.7.1.1

2311.7.1.2

2311.7.2

2311.7.2.1

~~2311.7.2.1.1~~

2311.7.2.2

2703.1.3

2703.13

2703.13.1

2703.13.1.1

2703.13.1.2

2703.13.1.3

2703.13.1.4

2703.13.2

5307.5

5307.5.2

5808.5

5808.5.1

5808.5.2

6004.2.2.7

6004.2.2.10

6004.2.2.10.1

6004.2.2.10.2

6004.2.2.10.3

6005.3.2

6005.5
6204.1.11

Rationale: The OSFM is proposing the above modifications in the Fire Code. The regulations are based on the proposal (F75-16) approved for the 2018 International Fire Code that incorporates the use of gas detection in power storage systems and plant processing and extraction. This code proposal has been heard by the ICC Fire Code Committee at the ICC Code Hearings held April, 2016 in Louisville, KY. Final Action of these modifications was approved in November 2016, in Kansas City, MO. The SFM is bringing this proposal to correlate with the adoption of regulations for Plant Processing and Extraction and the regulations for Power Storage Systems.

Justification provided at ICC hearings:

Gas detection systems are required for many different applications in the code. There is great inconsistency in how these systems are treated, and some requirements cannot be enforced because required listed gas detectors, controls and systems are not commercially available. A working group of the Fire Code Action Committee that included industry and code officials worked on developing this proposal that addresses these concerns.

The significant changes accomplished with this proposal are as follows:

Section 105.7.9 - A construction permit is required for installation of gas detection systems.

Section 202 - A definition of gas detection system was added that replaces the Continuous

Gas Detection System definition. Continuous gas sampling is addressed further in Section 916.6.

Section 604.2.6 - Gas detection systems are required to be provided with emergency or standby power. By default, Section 604 requires minimum 2 hours' duration. An option for providing a power loss trouble signal in an approved location in lieu of standby power is included in Section 916.5.

Section 606.8 requires ammonia refrigerant systems to comply with the IIAR 2 standard, which is already referenced in Section 606.

In Section 908 only items 1 and 2 apply to emergency alarm systems, items 3 through 7 really reference gas detection systems. The unnecessary/incorrect cross references were deleted.

Section 916 includes basic requirements for all gas detection systems and covers construction documents, equipment, power connections, emergency and standby power, sensor locations, gas sampling, system activation, signage, fire alarm system connections, maintenance, testing and sensor calibration. These are important safety requirements that are applicable to all gas detection systems, including those installed in a small mom and pop operation up to those in large industrial facilities. Gas detection system equipment is commercially available that can comply with these requirements.

Most of the revisions in Sections 23 through 64 accomplished the following:

- (1) deleted references to listed detectors and equipment,
- (2) provided consistency in how gas detection requirements are treated,
- (3) included cross references to Section 916 for basic system requirements, and
- (4) clarified existing requirements.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes regarding fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the and the proposed changes. Related documentation and reports are posted on the FCAC website.

Item 13. CBC Section Referenced - Editorial Change]

903.2.8

The SFM is proposing this editorial change with no regulatory change. The section that were referenced in the California Building Code in this section have changed. The California Building Code sections that had been reference were the sections for area and height increases allowed with automatic sprinkler systems. Those sections have been incorporated into the tables 504.3, 504.4 and 506.2. This change will provide clarity.

Item 14. CFC updating section with changes in the Health & Safety Code]

1103.8.5.2

Rationale: The OSFM is proposing the above modifications in the Fire Code. This section repeats the Health and Safety section 13113.7. The changes reflect the current text in the Health and Safety Code which has been modified.

Item 15. CFC editorial changes to match statute language Health & Safety Code 13210]

604.1.4.1

604.2.9

903.2.11.3

903.3.9

905.3.1

907.2.13

907.5.2.2

909.16

914.3.1.2

914.3.2

914.3.8.2

1103.3.2

1103.6.1

3313.1

Rationale: The OSFM is proposing the above modifications in the Fire Code to correct a conflict with the Health and Safety Code. The Health and Safety Code 1250 defines a high-rise building. The CFC has sections that need to be modified to be consistent with the statute.

Changes after the CAC

The OSFM is withdrawing Item 15 for further study. It was discovered that the changes could affect certain projects in a negative way that is not mandated. The scope of the proposal is for editorial changes, so further study is needed.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

The SFM did not rely on any technical, theoretical, and empirical study, report, or similar documents outside of those contained in this rulemaking in proposing that CBSC adopt said model code as a reference standard for the placement of existing SFM regulatory amendments for the California Building Standards Codes.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

The SFM believes that the amendments to the model code any additional building standards proposed are offered in typically both a prescriptive and performance base. The nature and format of the model code adopted by reference afford for both methods, the following is a general overview of the model codes proposed to be adopted by reference as well as state modifications:

This comprehensive fire code establishes minimum regulations for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broadbased principles that make possible the use of new materials and new system designs.

This code is founded on principles intended to establish provisions consistent with the scope of a building and fire code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

The International Building, Residential and Fire Code provisions provide many benefits, among which is the model code development process that offers an international forum for building and fire safety professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

CONSIDERATION OF REASONABLE ALTERNATIVES

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

The SFM has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the proposed adoption by reference with SFM amendments. Therefore, there are no alternatives available to the SFM regarding the proposed adoption of this code.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

The SFM has made a determination that this proposed action will not have a significant adverse economic impact on business. Health and Safety Code Section 18928 requires the SFM, when proposing the adoption of a model code, national standard, or specification shall reference the most recent edition of the applicable model code, national standard, or specification. Therefore, there are no other facts, evidence, documents, testimony, or other evidence on which the SFM relies to support this rulemaking.

**ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION,
ELIMINATION OR CREATION**

The Office of the State Fire Marshal has assessed whether or not and to what extent this proposal will affect the following:

- ☒ The creation or elimination of jobs within the State of California.

These regulations will not affect the creation, or cause the elimination, of jobs within the State of California.

- ☒ The creation of new businesses or the elimination of existing businesses within the State of California.

These regulations will not affect the creation or the elimination of existing business within the State of California.

- ☒ The expansion of businesses currently doing business with the State of California.

These regulations will not affect the expansion of businesses currently doing business within the State of California.

- ☒ The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

These regulations will update and improve minimum existing building standards, which will provide increased protection of public health and safety, worker safety and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

The OSFM does not anticipate a cost of compliance with most of the proposed building standards, however, clear benefits are included in the purpose and rationale and further noted below. Items proposed in this rulemaking provide the following:

- Items 1, 6, 8, 9, 10 & 11 are proposals to adopt the model codes early. No cost of compliance associated, benefit is provided by having clear, concise, complete and update text of the regulations and standards.
- Items 2 is a correlation of the regulations from the California Building Code from the High-Rise Working Group. No cost of compliance associated, the benefit is provided by having clear, concise, complete regulations.
- Items 3 & 4 are correlations from the Residential Fire Sprinkler Working Group to provide clarity for the installation of fire alarms and editorial changes. No cost of compliance associated, the benefit is provided by having clear, concise, complete regulations while providing design options.
- Items 5 is a proposal from the E Occupancy Working Group to provide clarity for the construction of school facilities. No cost of compliance associated, the benefit is provided by having clear, concise, complete regulations.
- Item 7 is state mandated changes for SB 612. The proposals from the Above Petroleum Storage Act workgroup to provide clarity in the regulations for meeting the statute. No cost of compliance

associated, the benefit is provided by having clear, concise, complete regulations.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

The SFM has determined that this proposed rulemaking action does not unnecessary duplicate or conflict with federal regulations contained in the Code of Federal Regulations that address the same issues as this proposed rulemaking.